

1 TITLE OF THE INVENTION

2 HUMAN EXTREMITY RESTRAINT

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4 FIELD OF THE INVENTION

5 This application relates to a device to be used primarily at psychiatric and medical  
6 facilities as a restraining means for inhibiting movement of patients without significant  
7 discomfort. It may also be useful for other applications requiring nonabrasive restraints.

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9 BACKGROUND OF THE INVENTION

10 Restraints are used by psychiatric and medical personnel to restrain out-of-control persons  
11 under a variety of circumstances and may also be used in other various operating environments.

12 Restraints are also used by hospital attendants, nurses, EMT's, and others to prevent  
13 persons from doing harm to themselves, other persons and to a property, at a particular point in  
14 time.

15 One of the problems associated with current restraint apparatuses is that if applied too  
16 tight, they can be injurious by causing skin abrasions, blood flow constriction and other problems  
17 to the wearer. If too loose, the wearer might be able to escape and cause injury to himself or  
18 others. Therefore, there is a need for a restraint that is non injurious to the wearer. This invention  
19 fills that need by providing a strong and effective, fabric-based, restraining device that is strong  
20 enough to restrain the wearer, and which is noninjurious and causes minimal discomfort.

21 The invention accordingly comprises the device possessing the features, properties, the  
22 selection of components which are amplified in the following detailed disclosure, and the scope  
23 of the application of which will be indicated in the appended claims.

24 For a fuller understanding of the nature and objects of the invention, reference should be  
25 made to the following detailed description, taken in conjunction with the accompanying  
26 drawings.

1 SUMMARY OF THE INVENTION

2 A fabric-based restraint to detain, bind, restrict or hinder the movement of the wearer.  
3 The device may be applied to the arms or legs of any size, for both children and adults without  
4 harming the wearer. The wraparound unit includes a built-in formed central loop to allow  
5 attachment of a location inhibitor, such that the device wearer can be secured in a fixed position  
6 such as a bed or Gurney.

7 The device of this invention may also be attached wrist to wrist or ankle to ankle for  
8 mobile restraint.

9 It is a first object to provide a fabric-based restraining device.

10 It is a second object to provide a restraining device that has an interchangeable throwaway  
11 skin contacting layer.

12 It is a third object to provide a washable reusable nonabrasion causing restraint.

13 Other objects of the invention will in part be obvious and will in part appear hereinafter.  
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BRIEF DESCRIPTION OF FIGURES

FIGURE 1 is a perspective view of this invention on the clothed wrist of a wearer

FIGURE 2 is a top plan view of this device.

FIGURE 3 is a bottom plan view of this invention.

FIGURE 4 is a top plan view of a variant having only two securing bands.

FIGURE 5 is a perspective view of a removable and disposable pad insert that can be utilized as part of this invention shown in exploded view, and showing the adaptation required for use.

FIGURE 6 is a bottom plan view of the inventive device modified to receive the pad insert that forms part of this invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIGURE 1 the device 10 of this invention is seen wrapped around the clothed arm of the wearer. Loop 20 which is built in and centrally disposed and which will be discussed infra in detail is used to attach the wearer to a wall, chair or bedframe as by a shackle, chain or rope. The discussion now moves to FIGURE 2.

The device of this invention is seen laid out in unrolled form in FIGURES 2 and 3. The device has a main body 11 and a series of bands 21, which bands preferably overlay a transversely disposed webbing section or segment 18.

Device 10 has a main body 11 formed of two layers, an outer layer 12 which may be of cotton, polyester, nylon or some other close woven material such as canvas. The inner layer 14 of the body 11 that lies upon the skin is a soft layer of fabric such as but not limited to velour. The main body has upper and lower parallel edges, 19, an inner oblique edge 17 and an outer edge 15. The outer edge 15 is disposed at a substantially right angle to the upper and lower edges.

There are four bands 22, 23, 24 and 25 that are attached to the upper layer 12 of the main body 11. These four bands are spaced apart from top to bottom and extend the full width of the body from the outer edge 15 to the oblique edge 17. While being spaced apart, they converge in pairs at points spaced slightly beyond the oblique edge of the body. The two inner bands 23, 24 are disposed in a convergent fashion toward each of the respective two outer bands at the oblique or inner edge, 17, of the body 11. A notch 26 and a notch 27 are formed at the junction of the respective two bands, approximately one inch beyond the inner edge 17, of the body portion. The bands could converge along the length of the body as well. While such is not shown, this is deemed to be within the skill of the artisan to do so.

From the points of convergence each of the two bands that form a pair namely 22 and 23 and the pair 24 and 25 are sewn together along seam 31 for the pair joined at notch 26 namely the pair now known as 22--23. The pair of bands 24 and 25 joined at notch 27 are also seamed together long their facing edge to form the pair now known as 24--25.

Returning briefly to the placement of the bands on the body 11, it is seen that the spacing between band 23 and band 24 need not conform to the spacing between the two members of the respective pairs 22 and 23 & 24 and 25. Band 22 and band 25 should preferably be disposed along the upper and lower edges of the outer fabric layer 12. Again see FIGURE 2. The stitch to be used for the sewing is preferably a blind stitch so that a wearer cannot try to break the thread using any type of implement available to him or her.

The "A" section of each band- that part that extends beyond the edge of the body is equal in length to the "B" section that is attached to the body 11. The reason for the equality of length

1 of the bands is such that when they are mated, the overlap will be co-extensive.

2 Each of the separate bands 22,23,24, and 25 for their "A" section, has only a top surface  
3 34 which is of the pile material of the closure. The "B" section of each band also has a pile layer  
4 35 on the top side, and a hook layer 36 of Velcro® or equal on the underside of the band.

5 Disposed transverse to the running of the four bands is a section of webbing, usually of  
6 nylon, which is readily available in the marketplace. This length of webbing 16 is cut to a size  
7 larger than the extension between the upper and lower edges of the main body 11. The webbing  
8 is sewn spaced to the body commencing at the upper and lower edges of the body at a location  
9 near or at the midpoint of the width of the body, with the outer edges of the webbing being at  
10 substantially the upper and lower edges of the body. That mode of attachment leaves a raised up  
11 or loop portion 18 in the middle which loop is spaced from the main body. The loop 18 has an  
12 opening therein designated 20. It is through this loop 18 that a chain or shackle or handcuff or  
13 other confining tool can be used to limit the ability of the wearer to move away, or to touch a part  
14 of the body with the retained extremity. See FIGURE 2. A cable tie, readily available to the art,  
15 can be attached to the loop of a pair of these restraints to secure a person's hands together during  
16 a crowd control action. While sewing the webbing to the body before the addition of the bands  
17 is preferred, either step can take place first.

18 The device of the first embodiment was made with four bands of about one inch in  
19 elevation that converged together as to form two bands of a height equal to two individual bands.  
20 The embodiment is practical and uses one inch wide bands of Velcro® brand hook and pile  
21 closure, which is readily available in several colors. But in point of fact only two bands are  
22 needed if two inch wide hook and pile closure is available. Reference is thus made to FIGURE  
23 4 wherein like numbers refer to like parts. One band 122 is sewn to the body 11 adjacent the  
24 upper edge, and one band 125 adjacent the lower edge of the body 111 both overlying the  
25 webbing section 16. Here too, the "A" portion of the two bands is of loop material only, while  
26 the "B" aspect is both loop on the obverse side and hook on the reverse side.

27 Preferably the upper and lower edge seams that connect the canvas or corduroy fabric of  
28 the upper layer 12 to the lower layer of velour, velvet, etc, is ripple layered along the length of  
29 the upper and lower edges to prevent bunching.

30 While the discussion previously has placed the oblique edge of the body proximal the two  
31 respective notches seen in FIGURES 2 and 3, the oblique edge could also be the outer or distal  
32 edge if desired.

33 In FIGURE 5 there is shown the optional pad insert 50. It has a flexible film base 51 of  
34 waterproof paper, polyester, or nylon to which is attached in each corner a Velcro® or equal tab

1 52 on the underside of the base 51. See FIGURE 6. A pad 53 of woven or nonwoven fabric or  
2 even cotton batting is removably, adhesively, attached preferably to the film base 51's top side.  
3 The pad may be fixedly attached but this renders cleaning and replacement for sanitary reasons  
4 more difficult.

5 The pad is worn adjacent the skin. The film base 51 is attached by its tab 52 to a matingly  
6 engageable pad of Velcro® on the underside of the invention 10. The pad is worn adjacent the  
7 skin such that abrasions to the wrist and/or ankle can be minimized or eliminated altogether.

8 The use of the insert pad 50 is optional, but is beneficial in the fight against disease  
9 transmission from wearer to wearer. In the medical field, concerns of cross contamination and  
10 universal precautions require that restraints be sufficiently cleaned between patients. A  
11 disposable pad attached to the restraint at the contact point with the skin's surface of the wearer  
12 will minimize cross contamination and the necessary cleansing of the body of the restraint. This  
13 disposable pad can be made of nonirritating paper or cloth such as felt so that the paper or felt  
14 can absorb fluid without irritating the skin and has a water-resistant backing to prevent body fluid  
15 from leaking into the restraint.

16 If the detachable pad 50 is not used, the surface 14, which contacts the wearer's skin, may  
17 be of soft, nonirritating, washable, permanently affixed, felt-like material.

18 For ease and convenience, the film base is generally rectangular in configuration with a  
19 Velcro® tab in each of the four corners' underside.

20 It is seen that I have devised an article that can be washed and reused many times, such  
21 as between uses. If there is a possibility that the most recent wearer of the device may be infected  
22 with HIV or a sexually transmitted disease, immediate disinfection can be carried out. Unlike  
23 metal handcuffs, the restraint of this invention forms no potential weapon for the wearer against  
24 the hospital, jail or other facility personnel nearby.

25 It is coincidental that the timing of this patent application arises close to the time of recall  
26 of 1,000 sets of handcuffs used by the sheriff's department in Los Angeles County California for  
27 fear of hurting suspects' wrists and the desire not to create inadvertent injuries, according to a  
28 recent Associated Press article. This device, especially when used with the optional insert pad,  
29 totally avoids that issue.

30 It is contemplated to have the device sized, small, medium, large and extra large to fit  
31 both hands and wrists of people of all ages and builds. The sizing would be in the body of the  
32 unit by making the distance between the upper and lower parallel edges greater or lesser than the  
33 medium size general fit model, which is of a distance of about six inches. The spacing between  
34 the outer edge and the oblique edge can also be modified from the medium sized model of about

1 the outer edge and the oblique edge can also be modified from the medium sized model of about  
2 nine inches within the range of six to twelve inches. Thus, the medium model has bands of about  
3 18 inches in length for both the "A" and the "B" portions. A loop of about two inches is  
4 considered adequate. Color coding can be readily accomplished if desired as by gender, size or  
5 special use high infection risk

6 The device of this invention can be readily used in an operating recovery room as well  
7 as by law enforcement. Being of fabric it can be readily sterilized. Being lightweight a plurality  
8 can be stacked in boxes for quick use during protests and other crowd control situations, by  
9 simply cuffing a person and chaining or shackling the extremity bearing this device to a wall,  
10 fence or other fixed object. Two of the devices can be attached via the loop using simple cable  
11 tie where two hand restraint is deemed necessary. By being fabric no injury to the wearer will  
12 occur, thus avoiding lawsuits for excessive force or injury to the party upon whom the device or  
13 devices is/are placed.

14 In extremely dangerous situations where dangerous or violent individuals are involved  
15 and where escape may be of concern, a locking handcuff or similar device may be applied over  
16 the invention without compromising any of the invention's virtues.

1            Since certain changes may be made in the described apparatus without departing from the  
2       scope of the invention herein involved, it is intended that all matter contained in the above  
3       description and shown in the accompanying drawings shall be interpreted as illustrative and not  
4       in a limiting sense.